

Introduction to Agricultural Carbon Trading



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Topics



- The Chicago Climate Exchange
- California Climate Action Registry
- The Nature Conservancy – Belinda Morris

The Chicago Climate Exchange (CCX)



- CCX is owned by Climate Exchange, plc, a London AIM-listed private corporation (LSE:CLE.L)
- CLE owns CCX and its subsidiaries: Chicago Climate Futures Exchange (CCFE), European Climate Exchange (ECX), and Insurance Futures Exchange Services (IFEX)
- CCX is North American platform for integrating voluntary legally binding emissions reductions with emissions trading and offsets for all six greenhouse gases.
- CCFE is a derivatives exchange that offers standardized and cleared futures and options contracts on emission allowances and other environmental products. RGGI derivatives trade on CCFE.
- IFEX is an exchange for margined insurance based derivatives in collaboration with Deutsche Bank. IFEX trades Event Linked Futures (ELFs) for US Tropical Wind.

The Chicago Climate Exchange (CCX)



- Chicago Climate Exchange (CCX) is the world's first – and North America's only – legally binding, rules-based greenhouse gas emissions allowance trading system. The CCX also is the world's only global system for emissions trading based on all six greenhouse gases.
- The CCX Tradable Commodity: The Carbon Financial Instrument (CFI). Each CFI contract represents 100 metric tons of CO₂ equivalent (CO₂e).
- Gases Included: Emissions of the following six GHGs from facilities owned by CCX Members are covered, as applicable.
 - carbon dioxide (CO₂)
 - methane (CH₄)
 - nitrous oxide (N₂O)
 - hydrofluorocarbons (HFCs)
 - perfluorocarbons (PFCs)
 - sulfur hexafluoride (SF₆)
- Emissions of all non-CO₂ GHGs are converted to metric tons CO₂e using the one-hundred-year Global Warming Potential (GWP) values established by the Intergovernmental Panel on Climate Change.

CCX Participants



- Participant Members are Offset Providers, Offset Aggregators and Liquidity Providers
 - Offset Providers: Owners of title to qualifying offset projects that sequester, destroy or displace GHG emissions. Offset Providers register and sell offsets directly on the Exchange
 - Offset Aggregators: Entities that serve as the administrative representative, on behalf of offset project owners, of multiple offset-generating projects. Offset projects involving less than 10,000 metric tons of CO₂ equivalent per year should be registered and sold through an Offset Aggregator
 - Liquidity Provider: Entities or individuals who trade on the Exchange for purposes other than complying with the CCX emissions reduction schedule, such as market makers and proprietary trading groups.

CCX Trading System



- The CCX Trading System has three component parts, which are integrated to provide Registry Account holders with real-time data to support trading, assist in managing member emissions baselines, reduction targets and compliance status.
- **1. The CCX Registry**
The CCX Registry is the electronic database that serves as the official record holder and transfer mechanism for Carbon Financial Instrument® (CFI®) contracts. All CCX Members have CCX Registry Accounts.
- **2. The CCX Trading Platform**
The CCX Trading Platform is an internet-accessible marketplace for executing trades among CCX Registry Account holders, and to complete and post trades that are established through private bilateral negotiations.
- **3. The Clearing and Settlement Platform**
The Clearing and Settlement Platform processes daily information from the CCX Trading Platform on all trade activity. This system is directly linked to the Registry to facilitate same day delivery of CFI contracts from trading activity, provided as a service to Registry Account holders.

CCX Members



- **Forest Products**
 - [Abitibi-Consolidated](#)
 - [Aracruz Celulose S.A.](#)
 - [Cenibra Nipo Brasileira S.A.](#)
 - [International Paper](#)
 - [Klabin S.A.](#)
 - [Masisa S.A.](#)
 - [MeadWestvaco Corp.](#)
 - [Neenah Paper Incorporated](#)
 - [Stora Enso North America](#)
 - [Suzano Papel e Celulose SA](#)
 - [Tembec Industries Inc.](#)
 - [Temple-Inland Inc](#)
- **Manufacturing**
 - [Bayer Corporation](#)
 - [Interface, Inc.](#)
 - [Ozinga Bros., Inc.](#)
 - [Smurfit-Stone](#)
- **Municipalities**
 - [City of Aspen](#)
 - [City of Berkeley](#)
 - [City of Boulder](#)
 - [City of Chicago](#)
 - [City of Oakland](#)
 - [City of Melbourne, Australia](#)
 - [City of Portland](#)
 - [County of Sacramento](#)
- **Environmental Services**
 - [Atlantic County Utilities Authority](#)
 - [Lancaster County Solid Waste Management Authority](#)
 - [Veolia Environmental Services North America Corp.](#)
 - [Wasatch Integrated Waste Management Authority](#)
 - [Waste Management, Inc.](#)
- **Ethanol Production**
 - [Corn Plus LLP](#)
- **Financial Institutions**
 - [Bank of America Corporation](#)
- **Food and Agricultural Products & Services**
 - [Agrum U.S. Inc.](#)
 - [Cargill, Incorporated](#)
 - [Monsanto Company](#)
- **Food Processing**
 - Meister Cheese Co. LLC
 - [Premium Standard Farms](#)
 - [Smithfield Foods, Inc.](#)
- **Petrochemicals**
 - [Petroflex Industria e Comercio SA](#)
- **Pharmaceuticals**
 - [Baxter International, Inc](#)

Trading Categories



- Eligible offset project categories include, but are not limited to:
 - Agricultural Methane
 - Landfill Methane
 - Coal Mine Methane
 - Agricultural Soil Carbon (Grassland)
 - Rangeland Soil Carbon
 - Forestry
 - Renewable Energy
 - Energy Efficiency and Fuel Switching

CO2 Trading-Ag Methane



- CCX has developed standardized rules for issuing CFI contracts for agricultural methane collection and combustion at livestock operations. Eligible systems include covered anaerobic digesters, complete-mix, plug flow digesters, as well as covered lagoons. The basic specifications are as follows:
 - Methane collection/combustion projects activated on or after January 1, 1999 may qualify.
 - Qualifying projects may earn offsets during the years 2003-2010.
 - Project proponents need to demonstrate clear ownership rights of the emission reductions from the destruction of methane.
 - Selling energy to a third party or using gas for onsite energy use does not preclude project from receiving credit, provided ownership of greenhouse gas attributes has been retained.
 - Methane collection projects that include electricity generation may also qualify for [Emission Offsets from Renewable Energy](#) based on displaced emissions.
 - All projects must be independently verified by a CCX-approved verifier.

CO2 Trading-Ag Soil (Grassland)



- CCX has developed standardized rules for issuing CFI contracts for carbon emission soil sequestration activities in the agricultural sector. Eligible soil carbon sequestration projects include continuous conservation tillage and grass planting. The basic specifications are:
 - Conservation tillage: Minimum five year contractual commitment (2006-2010) to continuous no-till, strip till or ridge till on enrolled acres (Not available in CA)
 - Grass planting: projects initiated on or after January 1, 1999 in CCX eligible counties may qualify (Available in CA at rate of 0.4 Metric Tons/Acre/Year)
 - Carbon sequestration projects must be enrolled through a CCX-registered Offset Aggregator
 - All projects must be independently verified by a CCX-approved verifier
 - CCX CFI contracts are issued at a standardized rate of CO2 per acre per year to land managers who commit to continuous conservation tillage and/or maintenance grass cover plantings. The offset issuance rates for specified regions of the U.S. and Canada can be provided upon request

CO2 Trading-Rangeland

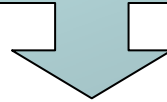


- CCX has developed simple, standardized rules for issuing CFI contracts for agricultural carbon emission reductions for improved rangeland management. The basic specifications are as follows:
 - Minimum 5 year contractual commitment.
 - Non-degraded rangeland managed to increase carbon sequestration through grazing land management that employs sustainable stocking rates, rotational grazing and seasonal use in eligible locations.
 - Restoration of previously degraded rangeland through adoption of sustainable stocking rates, rotational grazing and seasonal use grazing practices initiated on or after January 1, 1999.
 - Projects must take place within designated land resource regions.
 - Offsets are issued at standard rates depending on project type and location.
 - Rate for CA is 0.16 metric tons/acre/ year.
 - All projects must be independently verified by a CCX-approved verifier.

CCX Process

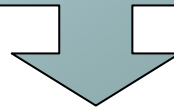


Greenhouse Gas
Emission Reductions



Carbon Credit Services

- Eligibility Assessment
- Protocol Development
- Monitoring
- Reporting
- Verification
- Registration



Carbon Credits
(certified, tradable, \$\$)

- CCAR is a private non-profit organization originally formed by the State of California.
- CCAR serves as a voluntary (GHG) registry to promote early actions to reduce GHG emissions by organizations.
- CCAR develops GHG reporting standards and tools for organizations to measure, monitor, third-party verify and reduce their GHG emissions across industry sectors and geographical borders.
- CCAR members voluntarily measure, verify, and publicly report their GHG emissions.
- The State of California is working to extend consideration for early actions in light of future state, federal or international GHG regulatory programs to CCAR members.

CCAR Climate Action Reserve



- The Climate Action Reserve is CCAR's platform for administering their GHG reduction goals.
- The Registry develops standardized greenhouse gas reduction project protocols for specific industry sectors based on internationally accepted best practices.
- The protocols are created by stakeholder work groups representing the industry, government, science, and environmental sectors, and are vetted through a formal public review and comment process.
- Owners and developers of greenhouse gas emission reduction projects register their projects and the associated inventories of Carbon Reduction Tons (CRTs) on the Reserve website.
- To register a project it must meet specific criteria and have been publicly listed for consideration. After registration, a project is verified by an independent third party to ensure the project has met the protocol standards and to accurately quantify the greenhouse gas reductions.
- Each ton of verified greenhouse gas emission reductions (CRTs) is assigned a unique serial number to prevent double counting and also assure buyers that when a CRT has been retired it cannot ever be sold or transferred again, creating a real and permanent offset.

CCAR Climate Action Reserve



- The Reserve is not an exchange. It is a public, non-profit organization that registers projects and tracks their associated emission reductions.
- It is not a place where anything is bought, sold, or traded. The actual sale or purchase of CRTs takes place directly between a buyer and seller outside of the Reserve.
- After a sale takes place, the parties inform the Reserve and the CRTs are moved from one account to another.
- Exchanges or brokers may offer their services to buyers and sellers to bring them together to transact sales on the Registry, but this is not a service that the Reserve itself will offer.